

Abstract

The present invention provides a device for digital pulse width modulation with: (a) a filter device (11) for filtering a filter input signal (10''); (b) a quantization device (13) for quantizing a filter output signal (11') of the filter device (11); (c) a PWM mapper device (15) for generating a digital PWM signal (15') from an output signal (13') of the quantization device (13); and (d) a feedback loop (17) for feeding back the digital PWM signal (15') to a loop input signal (10') and for generating the filter input signal (10'') by subtraction. The present invention likewise provides a method for digital PWM.

Figure 1

List of designations

- 1 input signal
- 10 interpolation device, for example interpolation filter
- 10' loop input signal
- 10'' filter input signal
- 11 filter device, in particular loop filter
- 11' filter output signal
- 12 filter sampling rate
- 13 quantization device
- 13' output signal of the quantization device
- 14 sampling rate of the quantization device
- 15 PWM mapper
- 15' digital PWM signal
- 16 amplification device and/or filter device, in particular post-filter downstream of amp.
- 17 control loop
- 17' parallel similar control loop
- 18 load
- 19 filter device (error feedback structure)
- 20 limiting device of an integrator
- 21 control loop
- 20' loop signal
- 20 control loop
- 23 noise shaper (sigma-delta modulator)
- 24 pulse width modulation (PWM)
- 25 operating voltage
- 26 A/D converter
- 27 digitized operating voltage signal

I, I1-I4 integrators

a_0 - a_4 coefficients

α , β factors

+ summation point

- subtraction